Veeam and SUSE
Enterprise Storage

Stephen Firmes
Solutions Architect, Global Alliances, Veeam

David Byte
Sr. Technology Strategist, Alliances, SUSE
Agenda

- Introductions
- A bit about Veeam and their offerings
- Veeam and SUSE
Why Are We Here?

SUSE Enterprise Storage + Veeam provides a compelling story

Tell you about Veeam architecture

Talk about how it integrates with SUSE Enterprise Storage

Talk about some of the process we went through and the recommendations for deployment
About Veeam
Veeam Hyper-Availability Platform

Veeam DataLabs

Veeam ONE

Availability for AWS
Backup for Office 365
Agents for Windows & Linux

Veeam Backup & Replication

Universal APIs

Any data, any app, across any cloud
5 stages of Intelligent Data Management

STAGE 1: Aggregation
STAGE 2: Backup
STAGE 3: Visibility
STAGE 4: Orchestration
STAGE 5: Automation

Policy-based
Behavior-based
The 3-2-1-1 Rule

3
Different copies of data
.vbk .vbk .vbk

2
Different media

1
Of which is off site

1
Is offline
The 3-2-1-1 Rule

Production storage

Primary backup storage

WAN acceleration

Secondary backup storage

Secondary backup storage (off site)

Off-site copy for long-term retention

Backup copy

Backup copy

Tape copy
Flexible Architecture

3 main roles:

- Backup Server (management)
- Proxy (backup engine)
- Repository/Gateway server (backup target compute)
Typical Scale-out Proxy and Repository
Veeam Cloud Tier
NEW Veeam Cloud Tier

The automatic tiering feature of Veeam’s Scale-out Backup Repository

- **Native object storage integration** with Amazon S3, Azure Blob storage, IBM cloud object storage, S3-compatible service providers or on-premises storage offerings
- **Unlimited capacity** for long-term data retention
- **No double charges** for storing data in the cloud, unlike with other backup providers who impose a “cloud tax”
- **No vendor lock-ins** associated with secondary storage appliances
Veeam Cloud Tier architecture

- The built-in automatic tiering feature of Scale-out Backup Repository offloads older backup files to cheaper storage, such as cloud or on-premises object storage.
Object upload

Object storage

1 Data block = 1 Object

Closed chain
Object upload

Object Storage

Closed chain
Object upload

Object Storage

Closed chain

.vbk

.vib
Object upload

Object Storage

Closed chain
Object upload

Object Storage

Closed chain

Closed chain

= block cloning
Object upload

Object Storage

Closed chain

Closed chain
Veeam Backup for SAP HANA
In addition to Veeam's image-based backup methods, Veeam provides an SAP HANA BACKINT plug-in to deliver:

- Backup and Restore with the native SAP HANA Database backup methods. Usage of SAP HANA Studio for Restores.
- Official SAP BACKINT certification
- Enhanced capabilities and use-cases for existing scripts and scheduling methods.
- Use Veeam's Scale-Out Backup Repository (SOBR) for maximum throughput during backup and restore operations. Additional servers and storage can be used to scale throughput and capacity.
# Veeam Plug-in Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>HANA BACKINT Plugin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version support</td>
<td>HANA 2.0 SPS2 and newer Express edition is not supported</td>
</tr>
<tr>
<td>OS supported</td>
<td>SLES for SAP 12 SP 1/2/3, SLES for SAP 15 RHEL for SAP 7.2/7.3/7.4/7.5</td>
</tr>
<tr>
<td>Plugin files available on ISO in the “plugins” folder</td>
<td>.rpm, .tar.gz</td>
</tr>
<tr>
<td>Supported Vendor Feature</td>
<td>System Copy (Restore to other Server); HANA Scale Out Cluster</td>
</tr>
<tr>
<td>Scheduling</td>
<td>Veeam Agent for Linux or external like SAP HANA Cockpit, UC4, TWS, Cron,.....</td>
</tr>
<tr>
<td>Veeam Explorer</td>
<td>n/a =&gt; Use HANA Studio or Cockpit</td>
</tr>
<tr>
<td>Licensing</td>
<td>Enterprise Plus or Server Agent</td>
</tr>
<tr>
<td>Target</td>
<td>Repository (Win/Linux/CIFS) &amp; ScaleOut Repository</td>
</tr>
<tr>
<td>File + Image Level</td>
<td>Backup &amp; Replication with Storage Integrations / Veeam Agent for Linux / N2WS Cloud Protection Manager</td>
</tr>
</tbody>
</table>
## Veeam SAP HANA best practices

### Primary backup methods (with database integrity checks):

- **Backint for SAP HANA** (via VBR 9.5 U4) – including Full/Diff/Incr & Logs
- Best for Point in Time restores and integrated into HANA
- Used by SAP Basis admin

### Secondary backup methods to lower RPO/RTO window:

- **Veeam Image Level backup**
  - **HANA snapshot** (as pre/post script)
- Best for Disaster Recovery Purposes
- Often used by infrastructure team

---

* Single tenant DBs only. Not possible during Backint backups. Scripts provided on github.com/veeamapplicaitons
Some Other Veeam Bits
Instant VM Recovery®

Restore any service in two minutes

Hypervisor

Production storage

Backup storage

Compressed/deduplicated backup file

vPower

Migrate online

Back to work in minutes!
SureBackup®
Automated backup verification

Hypervisor

Virtual lab

Application group

VM

vPower

Compressed/deduplicated backup file

Production storage

Backup storage

VM

OS

App

Report

SureBackup job
On-Demand Sandbox™

Use backups to spin up test environments

Start VMs from a backup file (SureBackup), replica or storage snapshots with a virtual lab proxy to separate network traffic.

The internal IP address of the virtual lab should be set to the default gateway in production. It is also possible to allow internet traffic through or map an IP address (static mapping) to allow production access to a VM.

When used in a DRS-enabled environment, SureReplica requires distributed switches.
Veeam and SUSE
How does Veeam protect SUSE?

- Image-based backup protects ALL VMs
  - File-level recovery for many filesystems (ext2-4, ReiserFS, btrfs, xfs)
  - Support for Vmware, Hyper-V, and Acropolis
  - Other hypervisors via Veeam Agent for Linux

- Veeam Agent for Linux extends support further!
  - Use for KVM, Azure, AWS, AHV and more
  - Support for physical SLES
  - Veeam VBR 9.5.4 supports
    - Btrfs, Ext 2/3/4, F2FS, FAT16, FAT32, HFS, HFS+, JFS, NILFS2, NTFS, ReiserFS, XFS
SUSE as a Backup Repository

Testing and validation efforts

SUSE Enterprise Storage presents a number of options
The Testing Labs

- Initial work – Intel Westmere lab w/IPoIB on QDR IB, Consumer grade SSD
- First Validation – Intel Silver 4116 based systems w/SSD on 100Gb
- Submitted Spinner – Intel 2690v3 based, 40GbE
Deployment Options
RBD based Scale-out Proxy and Repository
RBD vs CephFS
RBD vs CephFS

Why RBD?

Deduplication Advantage!
Dedupe w/btrfs

Easy peasy

1. Run backup
2. duperemove - suggest doing it in a periodic cron job, eg, daily

   duperemove -r -d -h -b 64k /veeam/
The Net Result

Test Backup Time

Physical:
6:37 (399MB/s)

Virtual:
9:10 (265MB/s)

Dedupe Time

Virtual:
119:11

Physical:
80:00

Physical w/o S/M/L:
52:53
VMWare

Know the VMware environment

Does your VMFS storage support VAAI? If not, disable it

Maximize the network to the Vproxy
Recommendations

Use a physical SUSE Linux Enterprise server as a target when possible
- 8+ fast cores (faster is better for dedupe)
- 32+GB RAM
- Fast Pipes 1x 25Gb is better than 4x 10

Have a Veeam Proxy on each ESX server
- Use PVSCSI
- Disable Windows Defender
SUSE Specifics
Products/Versions Used

- SUSE Linux Enterprise Server 12 SP3
- SUSE Enterprise Storage 5.5
- Veeam Backup & Recovery 9.5
SUSE Veeam Ready Status

Repository
  All SSD using RBD with XFS (SSD Based)
  https://www.veeam.com/kb2373
  100Gb (immaterial)

WIP
  S3 ongoing

  7.2k SATA based (submitted)
Resources

Veeam Docs & HCL

Veeam.com
veeam.com/ready.html

SUSE Integration Paper

suse.com/media/guide/using_suse_enterprise_storage_for_veeam_backup_and_restore_guide.pdf

SUSE Enterprise Storage

suse.com
Products->Software Defined Storage->SUSE Enterprise Storage
Wrapping it Up

SUSE & Veeam together = Flexible and extremely scalable backup solution

One cluster for backup & archive
Thank you